First Quarter July - Sept		DRI Man	DRI Manager		DRI Project Manager			Record Modify Date 10/21/2004					
		T. Hoover		G. Gauthier 916-324-2552					10/21	72001			
Record ID	Record Date	Project Status	Funding P	rogram	Funding Source		Project ID						
0181		Active	204001	0	100% Federal	SPR		3	043	L			
Contract I	No. Task Order	Source Dist Sou	urce Unit E	xpend. A	uth. Subjob	Spec	ial Des.		Documer	nt No.			
In-House		65	338 68	30821									
Project Tit	le												
Developme	ent of a New Gua	ardrail End Treatm	ent, Phase II										

Describe this quarter's accomplishments.

Concept "L" was developed using LSDYNA finite element models. This concept features hinged beams between rigid diaphragms spaced 4 feet, that collapse upon an end-on impact. The beams are hinged at each diaphragm connection and in the middle between the diaphragms. There are two levels of beams on either side of the diaphragms. The nose has a rubber marine fender cylinder. The beams are bent at the center hinges slightly to initiate collapse. This concept is proving to be low cost in materials, since it consists primarily of the steel beams and diaphragms. It requires quite a bit of appropriate to get the beams to collapse and fold in fact it is proving to be too stiff. Efforts have been made to "soften" the

Describe next quarter's task / deliverables & due dates.

Work will continue on demonstrating feasibility of this concept. A decision will be made by December whether to proceed with this concept, or try a new one.

Please provide actual first quarter expenditures amounts beginning July 1 thru September 30 for the 2003 / 2004 Fiscal Year. (Do not use \$ sign or commas when entering figures)

Contract \$	Equipment \$	Material \$	Travel \$	<u>PY \$</u>			
\$0.00	\$0.00	\$0.00	\$0.00	\$9,610.00			
\$0.00	\$0.00	\$0.00	\$0.00	\$60,010.00			
Current 2003 / 2004 Fisca	al Year Programmed Fund	ding Levels					
What percentage of your project is completed?	Are your current spe levels within the progr project funding? If no explain below.	ammed within the please pleas	ect accomplishments time schedule? If no se explain below.	Are project accomplishments within the scope? If no please explain below.			
20 %	_YES_		NO_	YES			
Do programmed funding le programmed budget funding			neet	Future fiscal years?			
programmed budget rundi	ig levele for this fiscal year	YES		YES			

If the answer is yes to funding level increases or decrease include detailed funding information below.

It was expected to have a feasible concept established at the end of this quarter, but more work needs to be done. The contract programmed amount should only be \$25,000 for FY04. The other levels are correct. The total should be \$125,000 all federal, no state.

The contract programmed amount should only be \$200,000 for FY05. The other levels are correct. The total should be Have you placed additional information on the page of this report under Project / Contract Manager Comments?

Submittal Date (mm/dd/yyyy)	First Quarter Submitted by:	Phone:	NO
01/21/2004	Gary Gauthier	324-2552	

	iarter Oct - Dec	DRI Manager			DRI Proje	ct Manager	Record Modify Date 10/21/200			
			. Hoover		Gauthier 9	916-324-2552	_	·	10/21/2001	
Record ID	Record Date	Project Statu	us Fund	ding Progra	am Fund	ding Source	F	Project ID		
0181		Active		2040010	100%	6 Federal	SPR	3	043 L	
Contract N	No. Task Order	Source Dist	Source Un	it Exper	nd. Auth.	Subjob	Special De	s. D	ocument No.	
In-House		65	338	68082	1					
Project Titl										
Developme	ent of a New Gua	rdrail End Trea	atment, Pha	ase II						
Describe t	his quarter's acco	omplishments.								
	proved to be too was made in late		it will not be	e thrown ou	t. A reques	t from manufa	cturers for sp	oring cost	and	
Describe n	next quarter's tasl	k / deliverables	s & due date	<u>es.</u>						
Pending inf	formation on the	springs, anoth	er concept	will be expl	ored, while	keeping conce	pt L on the s	helf.		
D.										
2004 Fisca	ovide actual seco al Year. (Do not e ontract \$ \$0.00		commas v nt \$		ring figures al \$	ober 1 thru De s) <u>Trave</u>		or the 200	3 / PY \$ \$8,458.00	
2004 Fisca	al Year. (Do not on one one one one one one one one one	use \$ sign or	commas v	when enter	ing figures	5)	<u>1 \$</u>	or the 200	<u>PY \$</u>	
2004 Fisca	al Year. (Do not on one one one one one one one one one	use \$ sign or Equipmen	commas v nt \$	when enter	ring figures al \$	5)	<u>1 \$</u>	or the 200	<u>PY \$</u>	
2004 Fisca <u>C</u>	ontract \$ \$0.00	use \$ sign or Equipmen	\$0.00 \$0.00	when enter	ing figures al \$ \$0.00	5)	\$0.00	or the 200	PY \$ \$8,458.00	
2004 Fisca Current 20 What p	ontract \$	Equipmen Equipmen Year Program Are your curr within the pr funding? If	\$0.00 somed Fundirent spendirent	Materia ing Levels project	\$0.00 suppose the state of the	Trave	\$0.00 \$0.00 ments Are	project ac	PY \$ \$8,458.00	
2004 Fisca Current 20 What p	solver (Do not on ontract \$ \$0.00 \$0.00 \$0.00 003 / 2004 Fiscal opercentage of r project is	Equipmen Equipmen Year Program Are your curr within the pr funding? If	\$0.00 some spendir rogrammed no please e	Materia ing Levels project	\$0.00 suppose the state of the	Trave	\$0.00 \$0.00 ments Are	project ac in the sco explai	\$8,458.00 \$60,010.00 ccomplishments pe? If no please	
Current 20 What p your core	solver (Do not on the solver should be solved should be solver should be solved should be solver should be solved should be s	Equipmen Equipmen Year Program Are your curr within the pr funding? If	\$0.00 Some of the second of th	ing Levels project explain	\$0.00 Are proje within the pleas	ect accomplish time schedule se explain belo	\$0.00 \$0.00 ments Are e? If no withinw.	project ac in the sco explai	\$8,458.00 \$60,010.00 \$ccomplishments pe? If no please n below.	
2004 Fisca Current 20 What p your core Do program	\$0.00 \$0	Equipmen Equipmen Year Program Are your curr within the pr funding? If	\$0.00 Some of the second of th	ing Levels project explain	\$0.00 Are proje within the pleas	ect accomplish time schedule se explain belo	\$0.00 \$0.00 ments Are e? If no withinw.	project ac in the sco explai	\$8,458.00 \$60,010.00 \$ccomplishments pe? If no please n below.	
2004 Fisca Current 20 What program Do program programm	\$0.00 \$0	Equipmen Equipmen Year Program Are your curr within the pr funding? If vels need adju-	\$0.00 Solution of the second o	ing Levels rease / dec	\$0.00 \$0.00 Are project within the please please NO	ect accomplishe time schedule se explain below	\$0.00 \$0.00 \$0.00 ments Are error within w.	project acin the sco explai	\$8,458.00 \$60,010.00 \$ccomplishments pe? If no please n below.	
2004 Fisca Current 20 What program Do program programm	solver. (Do not on the solver on tract \$ \$0.00 \$	Equipmen Equipmen Year Program Are your curr within the pr funding? If vels need adju-	\$0.00 Solution of the second o	ing Levels rease / dec	\$0.00 \$0.00 Are project within the please please NO	ect accomplishe time schedule se explain below	\$0.00 \$0.00 \$0.00 ments Are error within w.	project acin the sco explai	\$8,458.00 \$60,010.00 \$ccomplishments pe? If no please n below.	
Current 20 What programm Do programm If the answ	solver. (Do not on the solver on tract \$ \$0.00 \$	Equipment Equipment Year Program Are your curr within the program funding? If vels need adjuing levels for this	\$0.00 Solution of the second o	ing Levels rease / dec	\$0.00 \$0.00 Are project within the please	ect accomplishe time schedule se explain below	\$0.00 \$0.00 ments Are e? If no withinw. Futuration below.	project action the sconexplain the sconexplain YE ure fiscal years.	\$8,458.00 \$60,010.00 \$ccomplishments pe? If no please n below.	
Current 20 What programm Do programm If the answ	sontract \$ \$0.00 \$0.00	Equipmen Equipmen Year Program Are your curr within the pr funding? If vels need adju- g levels for this ng level increa	\$0.00 solution with the second	ing Levels rease / dec	\$0.00 \$0.00 \$0.00 Are projective within the please please please please please please present under Projective please please present under Projective please ple	ect accomplishe time schedule se explain below	\$0.00 \$0.00 ments Are e? If no withinw. Futuration below.	project action the sconexplain the sconexplain YE ure fiscal years.	\$8,458.00 \$60,010.00 \$ccomplishments pe? If no please n below.	

Third Quai	ter Jan - Mar	DRI M	anager	DRI	Project	Manager	Record I	Modify Da	ate 10/21/2004
	to: vaii iiia:		oover	G. Gau	thier 91	6-324-2552		,	10/21/2004
Record ID	Record Date	Project Status		g Program		ing Source		Project	ID
0181		Active		0010		Federal	SPR	3	043 L
ı	No. Task Order	Source Dist	1	Expend. A	\uth.	Subjob	Special D	es.	Document No.
In-House		65	338	680821					
Project Tit	le								
Developme	ent of a New Gu	ardrail End Trea	atment, Phas	e II					
Describe t	his quarter's acc	complishments.							
impacts.	was started. The with foam module		_				stiii enougr	i to redire	ect lateral
	ext quarter's task / feasibility of Co		ue dates.						
	ovide actual thrid r. (Do not use \$					ry 1 thru Mar	rch 31 for th	ne 2003 /	2004
	•					Trava	. I. C		DV ¢
	ontract \$	<u>Equipment</u>	<u></u>	Material \$		Trave	<u></u>		PY \$ \$9,745.00
	\$0.00		\$0.00	\$	0.00		\$0.00		\$60,010.00
Current 2	003 / 2004 Fisca	al Year Program	med Funding	g Levels					
you	percentage of project is mpleted?	levels within project fund	current spend the program ding? If no ple ain below.	nmed w	ithin the	ect accomplis time schedu se explain be	ıle? If no	accomp the sco	re project lishments within pe? If no please blain below.
	20 %	,	YES			NO			YES
	mmed funding le ed budget fundi				ase) to n	neet		Future fis	scal years?
					NO			_Y	ES
If the answ	ver is yes to fund	ding level increa	ises or decre	ase include	detailed	funding info	rmation bel	OW.	_
An increas	e in funding will	probably be nee	eded in FY06	5.					

Have you placed additional information on the page of this report under Project / Contract Manager Comments?

Submittal Date (mm/dd/yyyy)

Third Quarter Submitted by:

Phone:

06/10/2004 Gary Gauthier

324-2552

NO

Fourth Quarter Apr - Jun	DRI Manager		DRI	Project Manager	Record Modify Date 10/21/2004					
	T. Hoo	over	G. Gau	thier 916-324-2552		1				
Record ID Record Date	Project Status			Funding Source	Project ID					
0181	Active	2040	010	100% Federal	SPR	3 043 L				
Contract No. Task Order	Source Dist So	ource Unit	Expend. Au	uth. Subjob	Special Des.	Document No.				
In-House	65	338	680821							
Project Title										
Development of a New Guar	rdrail End Treatr	nent, Phase	e II							
Describe this quarter's acco	mplishments.									
Concept N feasibility study	ongoing. Looks	promising.								

Describe next quarter's task / deliverables & due dates.

Continue concept N feasibility using computer simulations.

Please provide actual fourth quarter expenditures amounts beginning April 1 thru June 30 for the 2003 / 2004 Fiscal Year. (Do not use \$ sign or commas when entering figures)

Contract \$	Equipment \$	Material \$	Travel \$	<u>PY \$</u>
\$0.00	\$0.00	\$0.00	\$0.00	\$7,123.00
\$0.00	\$0.00	\$0.00	\$0.00	\$60,010.00
Current 2003 / 2004 Fisca	l Year Programmed Fundir	ng Levels		
What percentage of your project is completed?	your project is levels within the programmed		ect accomplishments time schedule? If no se explain below.	Are project accomplishments within the scope? If no please explain below.
20 %	_NO_		NO_	_YES
Do programmed funding le programmed budget fundir	•	,	neet	Future fiscal years?
		NO		YES
If the answer is yes to fund	ling level increases or decr	ease include detailed	funding information bel	OW.

As requested several times before to no avail, FY05 should be \$25K contract, \$40K equip/matls and \$60K PY's FY06 should be \$200K contract, \$190K equip/matls and \$140K PY's

Have you placed additional information on the page of this report under Project / Contract Manager Comments?

Submittal Date (mm/dd/yyyy) Fourth Quarter Submitted by: Phone: 10/10/2004 **Gary Gauthier** 324-2552

Record II	Reco	ord Date Proj	ect Status	Funding Program	Funding Source		Project II	, 	
0181			Active	2040010	100% Federal	SPR	3	043	L
Project T									
Developr	ment of	a New Guardrail	End Treatment	t, Phase II					
		<u>Pi</u>	rogram Project	Contract Dollars		F	Program Proj	ect PYs	
		(excluding PY\$)			(excluding PY\$)	<u>-</u>	- rogram r rog	/011 10	
	<u>F Y</u>	Program \$	State \$	Federal \$	Contract \$	<u>F Y</u>	<u>PY\$\$</u>	<u>PYS</u>	
Ī	1988	40,000.00	0.00	40,000.00	10,000.00	I 1988	126,000.00	1.80	
	1999	0.00	0.00	0.00		1999	140,000.00	2.00	
	2000	150,000.00	0.00	150,000.00	120,000.00	2000	102,900.00	1.47	
	2001		0.00	0.00		2001			
	2002		0.00	0.00		2002			
	2003	0.00	0.00	0.00	0.00	2003			
	2004	0.00	0.00	0.00	0.00	2004	60,010.00	0.71	
	2005	65,000.00	0.00	65,000.00	65,000.00	2005	140,003.50	1.65	
	2006	405,000.00	0.00	405,000.00	405,000.00	2006			
	2007	0.00	0.00	0.00	0.00	2007			
	2008	0.00	0.00	0.00	0.00	2008			
		\$660,000.00	\$0.00	\$660,000.00	\$600,000.00		\$568,913.5	7.623	

<u>F Y</u>	Equipment \$	Material \$	Travel \$
1988	20,000.00	0.00	10,000.00
1999		0.00	
2000	25,000.00	0.00	5,000.00
2001			
2002			
2003			
2004	0.00	0.00	0.00
2005	0.00	0.00	0.00
2006			
2007			
2008			
	\$45,000.00	\$0.00	\$15,000.00

Pooled Fund Projects									
Lead Ca State	lifornia \$ Contribution Amount								
CA	414,000.00								
Fed Aid Auth Date	Fed Aid Prog <u>Number</u>								
	Combined : \$ Amount								
614,0	000.00								

Program Project Summary Totals

Summary for FYs 1998 - 2003 Includes Contract, Equipment, Materials, Travel, & PY\$ Summary for FYs 1998 - 2003 Includes Equipment, Materials, & Travel

\$1,228,913.50

\$60,000.00

Project Funding Share Percentage

FHWA & STATE Percentage Funding Share

FHWA Share 1.00 STATE 0.00

Problem Statement		DRI Manager		DRI Pi	DRI Project Manager			Record Modify Date 10/21/2004				
FIODICIII	Statement	T. Hoov	er	G. Gauth	ier 916-32	24-2552				1.0/=:		
Record ID	Record Date	Project Status Funding F		Program	Program Funding Source		Project ID					
0181		Active	2040	0010	100% Federal		SPR		3	043	L	
Contract I	No. Task Order	Source Dist So	ource Unit	Expend. A	uth.	Subjob	Specia	l Des.		Documer	nt No.	
In-House		65	338	680821								
Project Tit	:le											
Developme	ent of a New Gu	ardrail End Treat	ment, Phase	e II								
Project De	escription											

Develop and test a non-proprietary end treatment for guardrail and median barriers that is self-restoring with little or no maintenance, exhibits little or no vehicle rebound and meets NCHRP Report 350 Test Level 3."

Project Objective

The objectives of this research project are to develop an end treatment that:

- 1) Complies with NCHRP Report 350. This device will be designed to pass all evaluation criteria for test level 3 (100 km/h), nongating terminals. A series of at least eight compliance crash tests will be conducted.
- 2) Is Nongating. This device will attenuate end-on impacts to a smooth, safe stop and redirect lateral impacts along the entire length of the device. Gating devices require a large run out area behind the device for a vehicle to slow down to a stop after breaking through. Many roadside locations do not have the required run out area available for a vehicle to safely traverse.
- 3) Can be installed parallel or flared from the roadway. This system will be designed to be either installed parallel or flared 1.2 m away from the roadway.
- 4) Restores itself after impact. The device developed will be self-restoring, and require little or no maintenance repair after a design collision.
- 5) Costs less than \$20,000."

Problem Statement

Existing self-restoring crash cushions are proprietary products sold by one company and are very expensive, costing over \$30,000. They also require some maintenance and/or repair after impacts, and may cause the vehicle to rebound excessively after attenuation. A generic device that costs significantly less, requires very little or no maintenance after impact, and results in no vehicle rebound needs to be developed.

DRI Project Manager

Page 7

CMgr Comments		DRI Manager		DRI Pr	oject Ma	nager	Record Modify Date 10/21/2004				
		T. Ho	oover	G. Gauth	er 916-3	24-2552	1				
Record ID	Record Date	Project Sta	tus Fundin	g Program	Fundir	ng Source	Pro	oject	ID		
0181		Active	204	0010	100%	Federal	SPR	3	043	L	
Contract N	No. Task Order	Source Dist	Source Unit	Expend. A	uth.	Subjob	Special Des.		Docume	nt No.	
In-House		65	338	680821							
			·	•			•				
Contract / F	Project Manager	<u>Comments</u>									